

ON SOME NEOTROPICAL SIPHONAPTERA.

By KARL JORDAN.

(With text-figures 108-114.)

AMONG some specimens of fleas obtained in Venezuela by Dr. G. H. H. Tate, American Museum of Natural History, New York, and very kindly presented to our collection, is a specimen of *Adoratopsylla* Ewing 1925 which does not quite agree with any we have. In order to ascertain whether it belongs to *A. bisetosa* Ewing 1925 or not, this species had to be compared, and Dr. Edward A. Chapin, Curator of Insects in the U.S. National Museum, Washington, D.C., has

very kindly lent me a ♂ and a ♀ of the original three pairs on which *A. bisetosa* was based. I very sincerely thank both Dr. Tate for his welcome present and Dr. Chapin for his help.

Adoratopsylla is very closely related to *Tritopsylla* Cunha 1929, but easily distinguished from it.

***Tritopsylla* Cunha 1929 (text-fig. 108).**

Syn.: *Stenopsylla* Cunha 1914 nec Kuwana 1909-10.

♂♀. Head shorter than in *Adoratopsylla*, more strongly rounded; lower spine of genal comb not longer than the next one. In ♀ (text-fig. 108) the lower half or two-thirds of frons with incrassations extending inward as in *Craneopsylla* Roths. 1911 and allied genera, but these structures shorter; in ♂ there is a very faint trace of them close to frontal margin. Both sexes with 3 antepygidial bristles. Stigma cavity of abdominal tergum VIII very large.

♂. Clasper apically divided by a sinus into two processes; tendon of ductus ejaculatorius exceptionally long, with 4 convolutions.

♀. Duct of spermatheca not enlarged near bursa copulatrix, of even width throughout.

Only one species (consisting of several subspecies) is known as yet: *T. intermedia* Wagner 1901.

***Adoratopsylla* Ewing 1925.**

♂♀. Lower genal spine narrower and longer than the next one (text-fig. 113). Internal incrassations (or channels) from frontal margin of head inward rudimentary. Two long antepygidial bristles, upper one the longer. Stigma cavity of tergum VIII smaller than in *Tritopsylla*.

♂. Clasper not divided by a deep apical sinus into two processes; tendon of ejaculatory duct short, little longer than lamina of phallosome, but slightly curved upwards at proximal end, not rolled up.



♀. Duct of spermatheca widened from apex of bursa copulatrix for some distance, the widened portion (text-fig. 112) somewhat resembling a pea-pod.

Three species have been described, one of them as yet doubtful; I add a fourth. The species resemble each other closely, evidently being distinguished only by the genitalia.

1. **A. antiquorum** Roths. 1904.

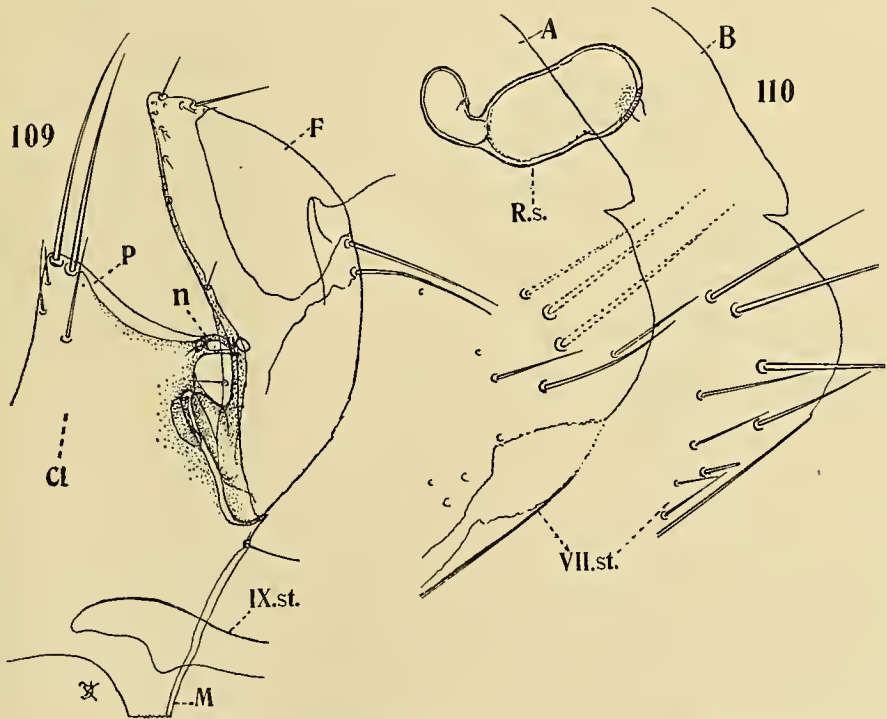
Described as *Ctenophthalmus*, it was placed by N. C. Rothschild in 1915 together with *T. intermedia* into *Doratopsylla*; Ewing put it into *Adoratopsylla* in 1925, where it belongs. We know two subspecies:

a. **A. a. discreta** Jordan 1926.

♂. *Doratopsylla antiquorum discreta* Jordan, *Nov. Zool.*, xxxiii, p. 392, no. 12, text-fig. 18 (1926) (Colombia).

The proofs of the paper quoted were evidently read hastily by me and not properly corrected. After the manuscript had gone to the printers I decided to employ the generic name *Stenopsylla* for both *intermedia* and *antiquorum*, but forgot to replace *Doratopsylla* on one of the pages of the proofs by *Stenopsylla*.

Only the ♂ is known. It differs from the Brazilian ♂♂ particularly in the nose of the posterior margin of the clasper being moved farther upwards.



b. **A. a. antiquorum** Roths. 1904 (text-figs. 109, 110).

♂♀. *Ctenophthalmus antiquorum* Rothschild, *Nov. Zool.*, xi, p. 643, no. 32, pl. xiv, fig. 72, pl. xv, figs. 80, 82 (1904) (Brazil).

Doratopsylla antiquorum Rothschild, *Ectoparasites*, i, p. 25, no. 2 (1915); Pinto, *Arthrópodes Parasitos*, i, p. 374, no. 7 (1930).

The illustrations (figs. 109, 110) are here published partly as a supplement to the figures of 1904 and partly to facilitate comparison of the next species with *A. a. antiquorum*. The main feature in the clasper of the ♂ is the peculiar

nose (n), an incassation on the inner surface, resembling the head of a bird ; the nose is concave in the centre as figured and strongly chitinized at the margins ; opposite it the digitoid F bears a rounded impression for the reception of the tip of the nose.

Sternum VII of the ♀ has not yet been figured. Unfortunately we have only a single specimen of this sex and in this, still more unfortunately, the sternum of the left side is ventrally torn, the specimen evidently having suffered in being mounted. Both the left (A) and the right (B) side are here figured. The two sides agree well, apart from minor differences usually observed in the two sides of an individual. The small triangular excision in both halves, which at first sight gives one the impression of being an accidental tear in the margin, must be looked upon as the homologue of the larger sinus of the other species of *Adoratomyia*. Body of spermatheca not quite twice as long as broad.

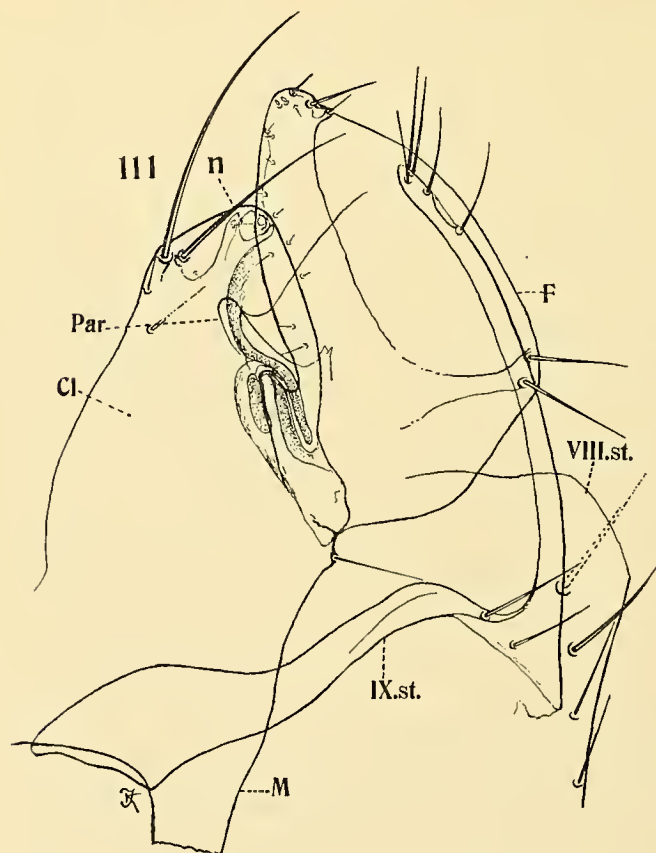
In the collection from South-east Brazil, 4 ♂♂, 1 ♀, off *Didelphys marsupialis aurita*.

2. *A. cunhai* Pinto 1925.

Stenomyia cunhai Pinto, *Bol. Inst. Bras. Sci.*, i, no. 3 (1925) (Est. de Rio).

Tritomyia cunhai id., *Arthropodes Parasitos*, i, pp. 351, 377, text-figs. 139, 183, 184 (1930).

On *Didelphys opossum*. The figures published by Dr. Pinto apply equally well to all the known Brazilian species of *Adoratomyia*; sternum VII is not figured. As Dr. Pinto did not know that *A. antiquorum* belonged to this genus, and therefore did not compare his *cunhai* with it, his *Didelphys* flea may turn out to be the same as *A. a. antiquorum* or as *A. bisetosa*. If it equals *bisetosa*, the name *cunhai* may have priority.



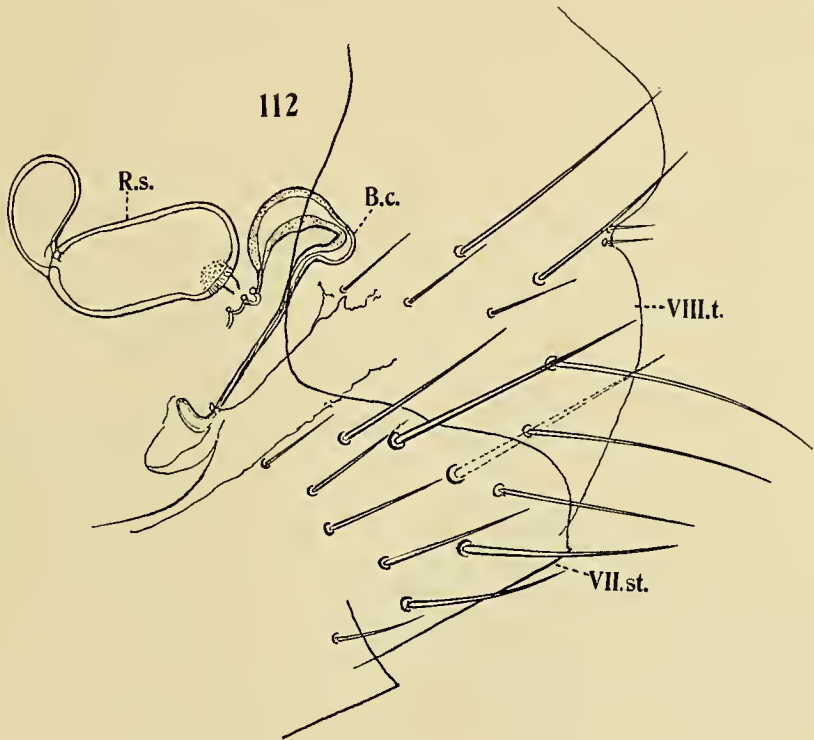
3. *A. bisetosa* Ewing 1925 (text-figs. 111, 112).

A. b. Ewing, *Journ. Parasitology*, xii, p. 44 (1925) (Rio Branco); Pinto, *Arthropodes Parasitos*, i, p. 373, no. 1 (1930).

According to information received from Dr. E. A. Chapin, the six specimens on which the original description was

based were [all on one slide. It is therefore probable that all six are co-types ; if that is the case, a type should be selected and labelled as such. Specific differences between ♀♀ being difficult to see, while those between ♂♂ are easily

observed, a male should be selected as type. Dr. Ewing, like some other naturalists, evidently prefers to describe the ♀ of a new species first and then the ♂. A description has the object, I take it, to enable other workers to identify the new species; therefore in any group where the ♀ shows the specific differences best, this sex should stand first, and where the ♂-characters serve more conveniently for the identification of the species, I should give the ♂ priority of place, and select a ♂ as type in order to simplify identification. In the present case a description of the ♀ which does not include sternum VII is of little value for the identification of the species. Dr. Ewing says that, in the ♀, the number of spines in the pronotal comb is 16 to 18; I definitely exclude a specimen with 16 pronotal spines from being selected as the type;



the normal number being 18 in this genus, an example with 16 pronotal spines may possibly represent another species. Dr. Ewing's description of the seventh abdominal tergite is that of the eighth, a mere pen-slip. Some of the main differences in the ♂-organs between *A. bisetosa* and *A. antiquorum* are correctly stated by Dr. Ewing, and his description of them left no doubt in my mind that *A. bisetosa* was a species distinct from *A. antiquorum*. The pair loaned to me by Dr. Chapin amply confirms the specific distinctness of *A. bisetosa*, as a comparison of figs. 109 to 112 will prove to the reader.

♂. Process P of the clasper (text-fig. 111) broadly conical, with the anterior and posterior margins somewhat rounded, the apical portion of the anterior margin from the pair of long subapical bristles upward more oblique, the apex itself subacuminate rotundate; the nose of *A. antiquorum* absent, the notch n apical. Digitoid F broader than in *A. antiquorum*, much more ventricose, and the pair of bristles much more ventral. Apex of ventral arm of sternum IX broader,

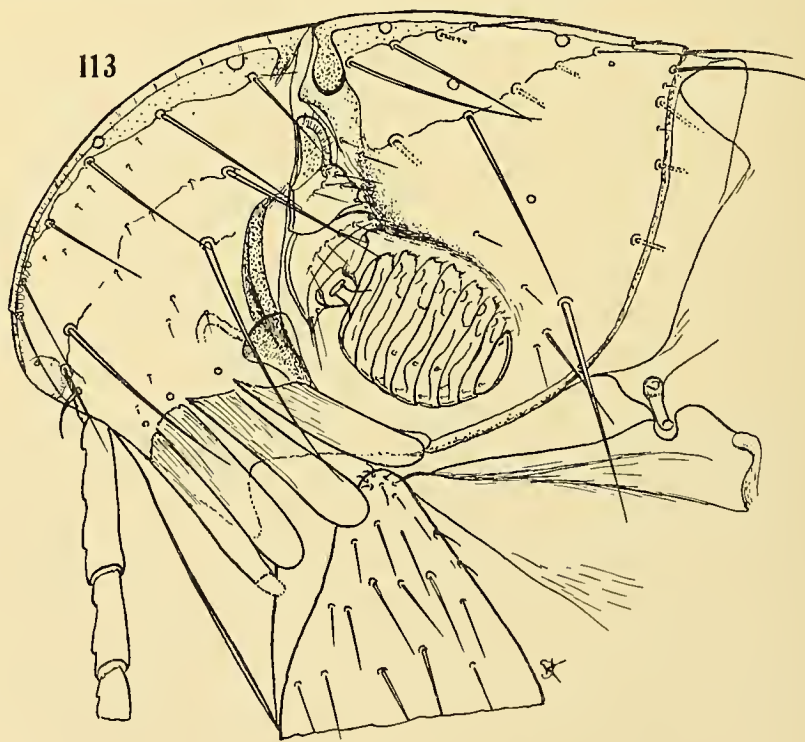
its anterior apical margin less incurved; ventral arm as slender as in *A. antiquorum*, but with more bristles, the most proximal of them farther from apex on the arm of the right side than on the left figured. Dorsal apical projecting angle of phallosome (Par) broader than in *A. antiquorum*.

♀. Sternum VII (text-fig. 112) deeply and broadly incurved, quite unlike in shape from what we see in *A. antiquorum* (text-fig. 110) and the species here following; each side with 10 bristles, of which 4 are subapical and long and strong. Apical margin of tergum VIII sinuate much below middle, strongly rounded above sinus, farther upwards slightly incurved and then again rounded for a short distance; above stigma 3 bristles each side, in sinus 2 small ones; on lower area a submarginal row of 5 on one side, 6 on the other, 2 of these almost on a level with the sinus and in front of them 3 small bristles as stated by Ewing. Spermatheca (R.s.) very similar to that of *A. antiquorum*, its tail more bulbous, its body nearly twice as long as broad. The two specimens examined are a little larger than *A. antiquorum*: hindfemur in *A. antiquorum* ♂ 0.39, ♀ 0.43, in *A. bisetosa* ♂ 0.40, ♀ 0.45 mm.

The specimens were obtained at Santa Maria, Rio Branco (Minas Geraës) off *Monodelphis brevicaudata*.

4. *A. dilecta* (text-figs. 113, 114).

A single ♀ obtained by Dr. G. H. H. Tate on the Phelps Venezuela Expedition on the Anyantepui plateau, 1850 m., off *Marmosa murina*.

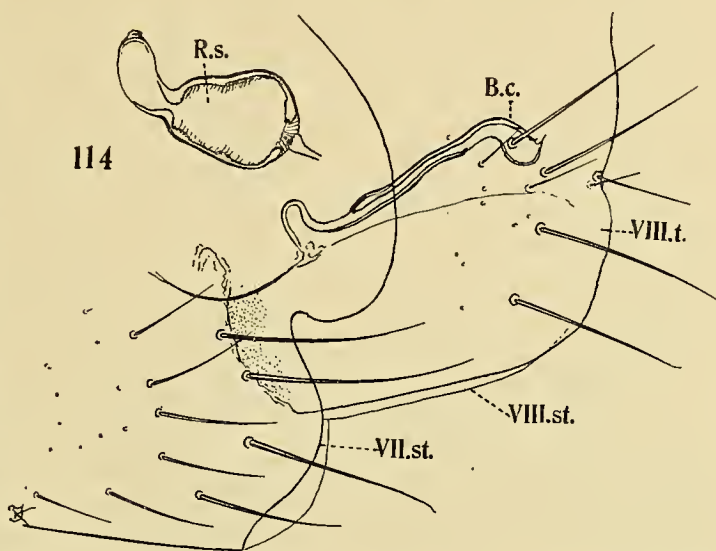


The geographically nearest *Adoratopsylla* is *A. antiquorum discreta* Jord. 1926 from Cundinamarca, Colombia, off *Peromyscus adustus*. The ♀ of *A. a. discreta* not being known, I was at first inclined to place the Venezuelan ♀ with that sub-

species; but a close comparison with the ♀ of *A. a. antiquorum* convinced me that the specimen represents a different species.

The head (text-fig. 113) agrees with that of the other species; the inward extensions of the frontal margin so distinct in the ♀ of *Tritopsylla intermedia* (text-fig. 108) are indicated in the lower half of the frons. The lower genal spine of the left side is broken at the tip, the dotted line indicating the length of the spine of the right side. The specific distinctions are found in the abdominal sternite VII and the spermatheca. This sternite (text-fig. 114) has a narrow, but

rather deep sinus the bottom of which is rounded; above and below the sinus the margin of the segment is rounded, the upper lobe more strongly so, projecting farther than the lower one; there is a subapical row of 4 bristles on one side and 5 on the other; in front of the row 6 smaller bristles on each side. Apical margin of tergum VIII far below middle with



a shallow sinus at which there are two small bristles as in the other species, but the upper bristle much longer than the lower one; on left side a subapical row of 4 bristles in front of which 2 small ones, on right side 5 subapical bristles and 4 small ones; above stigma 3 bristles. Anal sternite apically concave as usual in this genus and *Tritopsylla* (not in *Doratopsylla*), but the cavity small, less deep, therefore a larger number of the small bristles are placed on the outside of the segment in front of the cavity. Spermatheca much broader posteriorly than near its tail, which may partly be due to the organ perhaps not presenting a view from the side, orifice in middle, not subventral; tail with a small appendage and much less bulbiform than in the other species; duct of spermatheca destroyed in the process of clearing.

Length 3.1 mm.; hindfemur 0.43 mm.